WHAT IS CLAIMED IS:

1. A gas turbine shroud assembly comprising a shroud body defining a first cooling path and a second cooling path, the first and second cooling paths communicating with a common cooling air supply, the first cooling path adapted to deliver cooling air to a first shroud surface and the second cooling path adapted to deliver cooling air to a second shroud surface, wherein the first and second paths are configured such that, in use, cooling air is delivered to said first and second shroud surfaces by said first and second cooling paths at different pressures relative to one another.

2. A shroud assembly as defined in claim 1, wherein the shroud body comprises a shroud support and a shroud member, and wherein the shroud support is adapted to be mounted to a gas turbine engine casing and the shroud member is mounted to the shroud support.

3. A shroud assembly as defined in claim 2, wherein said first and second cooling paths extend through the shroud support.

4. A shroud assembly as defined in claim 3, wherein a downstream portion of said first and second cooling paths are separated from one another by a seal extending between said shroud support and said shroud member.

5. A shroud assembly as defined in claim 1, wherein at least one of the cooling paths includes at least two stages of discontinuous pressure drop.

6. A shroud assembly as defined in claim 1, wherein said first and second cooling paths are at least partially separated by a flexible seal.

7. A shroud assembly as defined in claim 6, wherein the seal extends between the shroud support and the shroud member.

8. A shroud assembly as defined in claim 6, wherein the seal permits relative movement between the shroud support and the shroud member.

9. A shroud assembly as defined in claim 6, wherein the seal is provided in linear segments.

10. A shroud assembly as defined in claim 9, wherein the linear segments have angled ends, the angled ends adapted to minimize leakage between adjacent segments.

11. A shroud assembly as defined in claim 2, wherein the shroud support is adapted to provide a plurality of cooling fluid supplies at different pressures to a plurality of shroud surfaces.

12. A shroud assembly as defined in claim 7, wherein a first end portion of the seal is housed within a first radial groove in the shroud support and a second end portion of the seal is housed within a second radial groove in the shroud member.

13. A turbine shroud assembly comprising a shroud support supporting a shroud ring, a cooling plenum defined between said shroud ring and said shroud support, and a seal extending from said shroud ring to said shroud support, the seal splitting a first portion of the cooling plenum from a second portion thereof and thereby permitting a pressure differential to be maintained between the first portion and the second portion.

14. A turbine shroud assembly as defined in claim 13, wherein the seal is adapted to permit relative thermal expansion between the shroud ring and the shroud support.

15. A turbine shroud assembly as defined in claim 13, wherein the first and second portions communicate with a common cooling supply.

16. A turbine shroud assembly as defined in claim 15, wherein said shroud support defines a radially inward groove, wherein said shroud ring defines a radially outward groove, the radially outward and the radially inward grooves being aligned to form an at least partially enclosed cavity, and wherein said seal is engaged within said cavity.

17. A turbine shroud assembly as defined in claim 13, wherein the seal is flexible.

18. A turbine shroud assembly as defined in claim 13, wherein the seal is slidably received in a slot defined in the shroud support and the shroud ring.

19. A turbine shroud assembly as defined in claim 13, wherein the seal is dogbone-shaped.

20. A turbine shroud assembly as defined in claim 13, wherein said seal includes a plurality of circumferentially arranged linear seal segments.

21. A turbine shroud assembly as defined in claim 20, wherein each of the seals has opposed ends, and wherein the ends of the seal segments are cut on an angle to provide a minimal inter-segment gap between each pair of adjacent seal segments.

22. A gas turbine engine comprising: a compressor section, a combustion section and a turbine section serially connected to one another, a shroud ring concentrically mounted within a shroud support for surrounding a stage of turbine blades, and a radially extending seal between the shroud support and the shroud ring, the seal allowing for thermal expansion and contraction of the shroud ring relative to the shroud support while separating an upstream plenum from adjacent downstream plenum and maintaining a pressure differential therebetween.

23. A gas turbine engine as defined in claim 22, wherein at least one perforated impingement plate is mounted to a radially inner surface of the shroud support for delivering cooling air to said upstream and downstream plenums.

24. A gas turbine engine as defined in claim 22, wherein said shroud support includes means for independently modifying the pressure of cooling fluid provided to said upstream and downstream plenums.

25. A gas turbine engine as defined in claim 24, wherein said means provides at least two discontinuous pressure drops in one of said cooling paths.

26. A gas turbine engine as defined in claim 22, wherein said shroud support defines an upstream cooling path and a downstream cooling path respectively leading to said upstream plenum and said downstream plenum.

27. A gas turbine engine as defined in claim 22, wherein the shroud support is adapted to provide a plurality of cooling air supplies at different pressures to the upstream and the downstream plenums.

28. A gas turbine engine as defined in claim 27, wherein cooling fluid is received by the shroud support from a single supply source.

29. A gas turbine engine as defined in claim 22, wherein a first end portion of the seal is housed within a first radial groove in the shroud support and a second end portion of the seal is housed within a second radial groove in the shroud ring.

30. A seal for a gas turbine engine comprising a shroud support and a shroud member, the shroud support and shroud member co-operating to define a plurality of shroud impingement cooling paths therethrough, the shroud support including at least one circumferential groove through a central portion thereof between at least a first impingement cooling path and a second impingement cooling path, the shroud member including at least one circumferential groove through a central portion thereof between at least a first impingement cooling path and a second impingement cooling path, the seal comprising a first curved end adapted for sealing insertion into the shroud support circumferential groove, and a second curved end adapted for sealing insertion into the shroud member circumferential groove, the seal

thereby adapted to maintain a pressure differential between said first and second impingement cooling paths.

31. The seal of claim 30, wherein the seal comprises a plurality of linear segments.

32. The seal of claim 31, wherein the seal segments include angled mating ends.